

REMARKS

This response is intended as a full and complete response to the final Office Action mailed July 13, 2005. In the Office Action, the Examiner notes that claims 1-9, 19 and 21-24 are pending, of which claims 1-9, 19 and 21-24 are rejected. Claims 1 – 4, 6 – 8, 19, and 21-24 have been amended herein. Claims 5 and 9 are cancelled. New claims 25-34 are provided herein.

In view of the following discussion, Applicants submit that none of the claims now pending in the application are obvious under the provisions of 35 U.S.C. §103.

Rejection under 35 U.S.C. §103

A. Claims 1-6, 19, 22 and 23

The Examiner has rejected claims 1-6, 19, 22 and 23 under 35 U.S.C. 103(a) as being unpatentable over Ueno et al. (U.S. Patent No. 6,438,596 B1, hereinafter "Ueno") in view of Hokanson (U.S. Patent No. 6,094,680 A, hereinafter "Hokanson"). Applicants respectfully traverse the rejection.

In general, Ueno teaches a video on demand system that presents users with a selection list of proposed videos for which server and network resources are available to immediately serve the selection video. A service control unit determines whether server and network resources are available by sending separate queries to server and network resources management control units. (Ueno, Abstract) In particular, Ueno teaches a hierarchical system of video servers including at least one center server and at least one local server. The local servers store video sources with a high expected frequency of access. The center servers store video sources with a low expected frequency of access. (Ueno, Col. 18, Lines 6-12).

Ueno, however, fails to teach or suggest Applicants' claim 1. Namely, Ueno fails to teach or suggest a plurality of head-ends where each head-end includes a server, storage, and manager, where the manager dynamically manages storage of video assets in primary and secondary storage partitions of the head-ends. More specifically, Ueno fails to teach or suggest that the manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to

store said frequently requested video asset and transmits the frequently requested video asset to the selected ones of the head-ends for storage in associated primary storage partitions. Similarly, Ueno fails to teach or suggest that the manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store the infrequently requested video asset and provides the infrequently requested video asset to the selected one of the head-ends for storage in an associated secondary storage partition.

Rather, Ueno merely teaches that a center server stores videos having a low frequency in access and that local servers store videos having a high frequency in access. The storage of high frequency videos in local servers and low frequency videos in a center server, as taught in Ueno, does not teach or suggest each of a plurality of head-ends storing frequently requested videos assets and infrequently requested video assets using a storage having a primary storage partition and a secondary storage partition, as claimed in Applicant's claim 1.

Furthermore, Ueno is devoid of any teaching or suggestion of the distributed video management functions of Applicants' claim 1. Rather, Ueno discloses a server resources management control unit which merely directs transmission of videos to set-top units. Ueno is devoid of any teaching or suggestion of dynamically managing video assets, much less distributed dynamic management of video assets as the video assets change between being frequently requested and infrequently requested, as claimed in Applicants' claim 1. Thus, Ueno fails to teach or suggest the managers of Applicants' claim 1.

As such, Ueno fails to teach or suggest at least the limitations of "each of said head-ends comprising: a server for distributing requested video assets to requesting subscriber equipment via said access network coupled between each of said plurality of head-ends and said respective subscriber equipment; a storage having a primary storage partition for storing frequently requested video assets and a secondary storage partition for storing infrequently requested video assets, said infrequently requested video assets being distributed amongst said secondary partitions of said head-ends; and a manager for managing migration of video assets, wherein said manager tracks asset request rates and threshold rates of respective video assets; wherein said

manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store said frequently requested video asset and transmits said frequently requested video asset to said selected ones of the head-ends for storage in associated primary storage partitions; wherein said manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store said infrequently requested video asset and provides said infrequently requested video asset to said selected one of the head-ends for storage in an associated secondary storage partition," as claimed in Applicants' claim 1.

Furthermore, Hokanson fails to bridge the substantial gap between Ueno and Applicants' claim 1.

In general, Hokanson teaches a system for managing distributed resources on a network. As disclosed in Hokanson, a network manager balances the allocation of network resources among network cites for making the resources available to users against the cost required to make the resources available to the users. (Hokanson, Abstract). More specifically, Hokanson teaches that a database server is configured to manage content within its own storage hierarchy according to cost/availability criteria such that content is organized at various hierarchical levels of the storage hierarchy, thereby facilitating acceptable availability of content to users.

Hokanson, however, alone or in combination with Ueno, fails to teach or suggest Applicants' claim 1, as a whole. Namely, Hokanson fails to teach or suggest a manager which "in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store said frequently requested video asset and transmits said frequently requested video asset to said selected ones of the head-ends for storage in associated primary storage partitions" and, further, which "in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store said infrequently requested video asset and provides said infrequently requested video asset to said selected one of the head-ends for storage in an associated secondary storage partition," as claimed in Applicants' claim 1.

Rather, Hokanson merely teaches a database server that is configured to manage content within its own storage hierarchy using cost/availability criteria. As cited by the Board of Patent Appeals and Interferences in the Decision on Appeal, Hokanson teaches that an individual server would migrate video assets between its own storage partitions. (Decision on Appeal, Pg. 6, Emphasis added). Specifically, the cited portion of Hokanson states, in part, that “[a]s certain video content is requested more regularly in comparison to [other] content, the highly requested content might be moved to higher hierarchical level (e.g., higher performing device, or replicated) while the less requested content might be moved to lower hierarchical level (e.g., lower performing device, or removal of any additional copies) if the cost/availability criteria indicates that the system will run more effectively for user demand without increasing costs.” (Hokanson, Col. 3, Lines 22-31).

In other words, the cited portion of Hokanson merely teaches movement of content between hierarchical levels within a database server. Specifically, the cited portion of Hokanson states that movement to a higher hierarchical level may include moving the content to a higher performing device of the database server or by adding additional copies of the content at the database server, and, similarly, movement to a lower hierarchical level may include moving the content to a lower performing device of the database server or by removing additional copies of the content at the database server. The movement of content between hierarchical levels within a content server, as taught in Hokanson, does not teach or suggest selection by a head-end of one or more head-ends on which content is to be stored in response to the content changing between frequently requested and infrequently requested, as claimed in Applicants' claim 1.

Furthermore, although Hokanson discloses a public network system (20) having multiple network cites (24, 26, and 28) where each network cite has a server (30, 34, and 38) and associated storage (32, 36, and 40), and states that the network manager for public network system 20 may be distributed across the respective servers of the network cites, Hokanson fails to teach or suggest the specific distributed, dynamic video asset management claimed in Applicants' claim 1. Rather, Hokanson merely states that “...each network manager module balances its own resources for that local network

cite...effectively load balanc[ing] the entire network system." (Hokanson, Col. 5, Lines 48-50, Emphasis added).

More specifically, with respect to Figure 3 of Hokanson, Hokanson discloses that a database server has an associated cost/availability balance that is tailored for that network cite, requests for content are monitored at the network cites in order to identify patterns, assessing costs and availability of supplying content to users, and determining whether to leave the collection of content stored at a particular cite unchanged or to change the collection of content at the cite based on a cost availability assessment. In other words, as taught in Hokanson, each database server determines whether or not to change its own collection of content. Hokanson is devoid of any teaching or suggestion of one database server selecting one or more of the other database servers to which content is to be transferred.

As such, a database server determining whether or not to leave the collection of content stored in its own storage unchanged, as taught in Hokanson, simply does not teach or suggest a manager of a head-end that selects one or more other head-ends to which to transfer a video asset, much less that, in response to an infrequently requested video asset becoming frequently requested, a manager at a head-end selects ones of the other head-ends in the network to store the frequently requested video asset and transmits the frequently requested video asset to the selected ones of the head-ends for storage in associated primary storage partitions, or, in response to a frequently requested video asset becoming infrequently requested, a manager at a head-end selects one of the head-ends to store the infrequently requested video asset and provides the infrequently requested video asset to the selected one of the head-ends for storage in an associated secondary storage partition, as claimed in Applicants' claim 1.

Moreover, assuming that the teachings of Ueno and Hokanson can be operably combined, the resulting system would merely teach a system including local servers storing videos with high expected access frequency and a center server storing videos with low expected access frequency, where each of the servers is capable of managing the local distribution of videos within its own hierarchy of storage devices. The resulting system, however, does not teach or suggest that the local servers select other ones of the local servers to store specific videos and transmission of the videos to the selected

ones of the local servers for storage in primary storage partitions in response to infrequently requested video assets becoming frequently requested. Similarly, the resulting system does not teach or suggest that the local servers select one of the local servers to store specific videos and providing of the videos to the selected one of the local servers for storage in a secondary storage partition in response to frequently requested video assets becoming infrequently requested.

Therefore, Ueno and Hokanson, alone or in combination, fail to teach or suggest the Applicants' invention, as a whole.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather, the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 U.S.P.Q. 1021, 1024 (Fed. Cir. 1984) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 U.S.P.Q. 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). Ueno and Hokanson, alone or in combination, fail to teach or suggest the Applicants' invention, as a whole.

As such, the Applicants submit that independent claim 1 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, independent claim 19 recites features substantially similar to the features of claim 1. Thus, for at least the same reasons discussed above with respect to claim 1, Applicants submit that independent claim 19 is also not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

As such, the Applicants submit that independent claims 1 and 19 are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Furthermore, claims 2-6, and 22 and 23 depend, either directly or indirectly, from independent claims 1 and 19, and recite similar features thereof. As such, and at least for the same reasons as discussed above, the Applicants submit that claims 2-6, 22 and 23 are also not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

Therefore, Applicants respectfully request that the rejections be withdrawn.

B. Claims 7-9 and 24

The Examiner has rejected claims 7-9 and 24 as being unpatentable over Ueno and Hokanson as applied to claims 6 and 23 above, and further in view of Kikinis (U.S. Patent No. 6,163,795 A, hereinafter "Kikinis"). Applicants respectfully traverse the rejection.

For at least the reasons set forth above, the Applicants submit that independent claims 1 and 19 are not obvious in view of the combination of Ueno and Hokanson. Furthermore, claims 7-9 and 24 depend, directly or indirectly, from independent claims 1 and 19, and recite additional features thereof. As such, for at least the same reasons as discussed above, the Applicants submit that dependent claims 7-9 and 24 are also not obvious in view of the combination of Ueno and Hokanson.

Furthermore, Kikinis fails to bridge the substantial gap between Ueno and Hokanson and Applicants' claims 1 and 19.

In general, Kikinis teaches a service for delivering, on demand, locally accessed video to client devices. The service includes a plurality of client stations adapted for receiving and playing videos from file servers. (Kikinis, Abstract). In particular, each file server with a video input apparatus accepts video clips from a video input apparatus, stores the clippings in a database, and shares the clippings with other file servers. (Kikinis, Col. 2, Lines 21-24). As taught in Kikinis, the file servers automatically transmit newly downloaded locally-accessed video entities to each of the plurality of file servers on the network through WAN connections, store details of various interests provided by clients, notify connected clients of new video entities available, and transmit selected video entities to at least one of the client stations.

Kikinis, however, fails to teach or suggest each and every element of Applicants' claim 1. Namely, Kikinis fails to teach or suggest at least the limitations of "wherein the manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store the frequently requested video asset and transmits the frequently requested video asset to the selected ones of the head-ends for storage in associated primary storage partitions" and "wherein the manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store the infrequently requested video asset and

provides the infrequently requested video asset to the selected one of the head-ends for storage in an associated secondary storage partition," as claimed in Applicants' claim 1. Similarly, Kikinis fails to teach or suggest similar limitations of Applicants' claim 19.

Rather, from at least the portions of Kikinis described above, it is clear that Kikinis is primarily directed toward distribution of video entities to the file servers using various WAN connections, as well as tailoring the video content that is made available to the client using information provided by the clients regarding the video content that the clients are interested in receiving from the file servers. Kikinis is devoid of any teaching or suggestion of allocation of video assets across different combinations of head-ends, much less selection of head-ends at which video assets are stored and storage of video assets using primary and secondary storage partitions at head-ends, as taught in Applicants' claim 1. Thus, Kikinis, alone or in combination with Ueno and Hokanson, fails to teach or suggest Applicants' invention, as a whole.

As such, Ueno, Hokanson, and Kikinis, alone or in combination, fail to teach or suggest the Applicants' claim 1, as a whole. Thus, Applicants submit that independent claim 1 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, independent claim 19 recites features substantially similar to the features of claim 1. Thus, for at least the same reasons discussed above with respect to claim 1, Applicants submit that independent claim 19 is also not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

Furthermore, claims 7-9 and 24 depend, either directly or indirectly, from independent claims 1 and 19, and recite additional features thereof. As such, Applicants submit that claims 7-9 and 24 are not obvious and fully satisfy the requirements of 35 U.S.C. §103.

Therefore, Applicants respectfully request that the rejection be withdrawn.

C. Claim 21

The Examiner has rejected claim 21 as being unpatentable over Ueno and Hokanson as applied to claim 19 above, and further in view of Kenner (U.S. Patent No. 6,269,394 B1, hereinafter "Kenner"). Applicants respectfully traverse the rejection.

For at least the reasons set forth above, the Applicants submit that independent claim 19 is not obvious in view of the combination of Ueno and Hokanson. Furthermore,

claim 21 depends from independent claim 19 and recites additional features thereof. Thus, for at least the same reasons as discussed above, Applicants submit that dependent claim 21 is also not obvious in view of the combination of Ueno and Hokanson.

Furthermore, Kenner fails to bridge the substantial gap between Ueno and Hokanson and Applicants' claim 19.

In general, Kenner teaches a video clip storage and retrieval system in which video clips may be stored locally or at remote locations, and may be requested and retrieved by a user via an associated multimedia terminal. (Kenner, Abstract). In particular, Kenner teaches that the system further includes means for uploading and distributing clips to geographically diverse servers, dynamic load balancing, and subscription management mechanisms.

Kenner, however, alone or in combination with Ueno and Hokanson, fails to teach or suggest Applicants' claim 19, as a whole. Namely, Kenner fails to teach or suggest at least the limitations of "in response to an infrequently requested video asset stored on a secondary partition becoming a frequently requested video asset, selecting ones of the head-ends to store the frequently requested video asset and migrating the video asset stored on the secondary storage partition to the selected ones of the head-ends for storage in the corresponding primary storage partitions" and "in response to a frequently requested video asset stored in a primary storage partition becoming an infrequently requested video asset, selecting one of the head-ends to store the infrequently requested video asset and migrating the video asset stored on the primary storage partition to the selected one of the head-ends for storage in the corresponding secondary storage partition," as claimed in Applicants' claim 19.

Rather, from at least the portions of Kenner described above, it is clear that Kenner is primarily directed towards retrieval of comprehensive data from one or more databases in response to requests from a user multimedia terminal. Kenner merely teaches the partitioning of a system based on the features important to the operation and the maintenance of the system. (Kenner, Col. 4, Lines 47-53). Kenner does not teach or suggest allocation of video assets across different head-ends, much less selection of head-ends at which video assets are stored and storage of video assets using primary

and secondary storage partitions of respective storages at the head-ends, as taught in Applicants' claim 19. Thus, Kenner, alone or in combination with Ueno and Hokanson, fails to teach or suggest Applicants' invention as a whole.

As such, Ueno, Hokanson, and Kenner, alone or in combination, fail to teach or suggest Applicants' claim 19, as a whole. Thus, Applicants submit that independent claim 19 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claim 21 depends from independent claim 19, and recites additional features therefor. As such, the Applicants submit that claim 21 is not obvious and fully satisfies the requirements of 35 U.S.C. §103.

Therefore, Applicants respectfully request that the rejection be withdrawn.


CONCLUSION

Thus, Applicants submit that none of the claims, presently in the application, is anticipated or obvious under the provisions of 35 U.S.C. §103. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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